

ity of the doctor who performed the Caesarian section far more than his obstetrical judgment which was, to say the least, somewhat deficient. It is also a source of wonder that a uterus will stand as much as this one did—two rapidly succeeding pregnancies and long, hard labors in the presence of a Caesarian cicatrix only to subsequently rupture with the third pregnancy before the onset of labor.

A SANE YET NON-SAFE FOURTH.

By C. S. G. NAGEL, M. D., San Francisco.

H. L., a healthy girl of four years, kindly referred by Dr. Oscar Mansfeldt, bravely marching by her father's side to a picnic on July 4th last, is struck in the left eye by a rebounding thistle head. Only the slightest reddening noticeable for several days, and thereafter an ever-increasing whitish reflex from the pupil. On July 20th patient first brought to my office. There is a slightly less than 1mm x 1mm circular fresh macula throughout the full thickness of the cornea near its center in the upper outer quadrant. On dilation of the pupil a rather broad posterior synechia manifests itself in the pupillar margin close to the corneal scar and an extensive fresh opaqueness of lens over its upper half is seen. Diagnosis traumatic cataract, the synechia evidently covering the injury to lens capsule. Increasing intraocular tension necessitates a simple linear extraction on August 21st with clear pupil resulting.

Accidental traumatic cataract like the foregoing, without severe destructive ocular complications, from a pointed object thrust into the eye and promptly withdrawn without leaving any foreign matter behind or proving infectious—is extremely rare. In one history recorded the agent is a green horse-chestnut, in another a sparrow's beak, in a third a thorn. Wilful injury along the same lines, with a needle to produce cataract seems to have been not uncommon with recruits for the Russian army in order to escape service. (Talco Klin. Monatsbl. f. Augenhk. 1892 p. 4013.)

Head Building.

THE CLASSIFICATION OF NAVAL RECRUITS

By A. W. STEARNS, M. D., Lieut. M. C., U. S. N. R. F.

INTRODUCTORY.

Since the period of the present war large numbers of young men have entered the Navy from every walk of life, embracing all degrees of ability, education and training. The numbers have been so large that no personal method of estimating the worth of the individual has been possible, yet, obviously, it is highly desirable that some sort of a classification be made, that each man may as far as possible be used to the best advantage by the Government. The first rough grouping has been made at the recruiting office, but due to the fact that work there was necessarily done hurriedly, and that the mass of recruits could only be enlisted as apprentice seamen, a classification at the training station becomes important.

Something more than a year ago the writer was detailed at a Naval training station as psychiatrist, his duties being to detect those recruits who by reason of mental defect or instability were not qualified for military service. For this purpose a brief life history was taken from each recruit upon his arrival at the station. These history cards were filed, the career of doubtful individuals followed and also failures were studied during their subsequent career. A small percentage of unfit was found, and in general, lack of success by psychopathic individuals seems to be due to one of three factors as follows:

1. Inability to learn,
2. Disciplinary troubles,
3. Sickness.

In the course of this history taking a mass of information was accumulated concerning the entire personnel. Gradually, and at first informally, different departments began to make use of this information. The public works officer, always on the lookout for artisans, began to consult the history files. The executive office searching college boys as possible material for the commissioned officers' school, found the same cards useful, and instructors in the various schools frequently referred to them in connection with their problems. This demand grew to such an extent that it seemed advisable to devise a scheme by which the whole mass of military raw material might be classified and indexed. In starting such a classification, it was somewhat difficult to know where to begin and where to stop. The first question to be answered was, what facts concerning a man are of fundamental importance to the Navy? With simplicity as well as utility in mind, four things were chosen as of primary importance.

First: Physical condition, including health in general. This needs no discussion here, as the Bureau of Navigation does not recognize graded service, and so it is presumed that every man accepted is physically fit for general service; those not so found are supposedly eliminated as soon as detected. From the experience of several thousand physical examinations, it would appear to the writer that some improvement could be made in this field if a history were taken and if more emphasis were placed upon function and less upon anatomical findings.

Second: Mental condition, including capacity as well as health. Here, again, all accepted are supposed to be free from mental disease or defect. At the present time this is not the fact. Some examining physicians advocate accepting feeble-minded and psychoneurotic patients; others make no attempt to detect them. Anyone advocating the use of mentally handicapped patients for military purposes cannot be familiar with such cases and, from the writer's experience, every attempt should be made to exclude them. Therefore, the first step aiming toward classification must be the detection of the mentally unfit. Having eliminated the unfit, * those accepted would range in mental

*Stearns, A. W., Journ. A. M. A., Jan. 26, 1918.
Stearns, A. W., Naval Med. Bulletin, July, 1918.
Stearns, A. W., Military Surgeon, Dec., 1918.

capacity from dull-normal to the most brilliant. The Navy can use men of all degrees of intelligence above the feeble-minded, but it is obviously wise to use them for different work. Rather dull men can be used for general detail and in the firing room. Brighter ones are needed to enter the various schools and the brightest would naturally be officer material.

If time enough were available, each man would probably find his level, but the "trial and failure" method is neither efficient nor economical, provided some other can be devised. Recommendations of company commanders vary in reliability as they are dependent upon a fallible personal opinion and often times upon meagre information. Educational qualifications are not enough. It is probable that psychological tests, imperfect though they may be, offer the best method of forming a general estimate of a man's capacity.

Third: Formal education. Though the amount of formal education received is not a fair index of a man's possibilities, it does help toward forming an estimate of his worth. College men have had certain special studies making them more available for intensive training as officers and, though no illiterates are received in the Navy, those with a meagre education are hardly able to do the work required by the schools.

Fourth: Industrial training. The rapidity with which the Navy has expanded has made it essential that any special skill acquired prior to enlistment be known and used. There is always a demand for certain artisans and from time to time need is had of the most diversely trained men, so that, if classified, such an one can easily be found. Also by having a list of trained men available it often happens that they are used to good advantage; the supply creating the demand. Then, again, it is of value in estimating the man's capacity to know the degree of his industrial success.

These four things, then, seem of enough importance to warrant their accurate determination in the case of each recruit. Each ship or station, by having men so classified could use its man power to better advantage. Properly indexed, this information is readily accessible and when a man's subsequent record is at hand it may truly be said that a beginning has been made in the "measure of a man."

Different departments will later on wish to further analyze the material in search of more special ability or training, but this much is necessary on every man.

MENTAL CLASSIFICATION.

The accuracy with which a man's mental capacity can be estimated by psychological tests has not been finally determined. Opinions vary from that which says that life itself is the only test to the one which presumes to give final judgment by some pet test. The Binet-Simon Scale has everywhere been accepted as an aid in determining feeble-mindedness, and certain tests have proven of value in educational work.

It also seems to be quite generally agreed that there is an high correlation between the score made on mental tests and general capacity. Tests for special ability have probably not been so successful. The use of a scale to be given to groups has recently been made a part of the army routine and the psychological department is now engaged in grading every soldier. Neither the scale nor its results are available for general use. The navy problem is somewhat different from that of the army because of the almost entire lack of illiterate and non-English speaking men. As there is no provision by which specially trained men can be obtained to do testing in the navy, it is necessary to have a scale which can be used by assistants only slightly trained. In choosing individual tests for a series it seemed to the writer that the Trabue Language Scale offered the best already standardized material. After more or less initial experiments Trabue Scale C was chosen as a nucleus for a series. It has been used exactly as directed in Trabue's book "Language Scale Tests." To this have been added four other tests, making the series as follows:

1. Trabue C.
2. Dissected sentences from Binet-Simon Scale.
3. Cancellation test.
4. Memory span for numerals.
5. Healy Code.

As the Trabue was scored on a basis of 20, the others have been standardized to this. Three dissected sentences are given in the second test and credit is given only for perfectly constructed sentences. If one was correct a mark of six has been given, 13 for two, and 20 for three. Time of three minutes has been allowed for the three sentences. For the third test a piece of prose containing 42 e's has been used and one minute given for canceling the e's. One has been deducted from 20 for each e missed and if less than 22 were canceled zero has been given. For the fourth test three attempts at 5, 6, 7, 8 numerals have been given. A credit of five has been made for one correct series making a total of 20. In the fifth, the Healy code, a sentence of 10 letters has been required to be written and credit of two given for each correct letter. Thus a total perfect score will be 100.

Figure No. 1 shows the distribution of 4000 scores.

These were at first divided into quarters which fell at 57, 75 and 86. For utilitarian purposes these groups have been somewhat modified and are now divided as follows:

- Group No. 1 Below 65, inferior.
- Group No. 2 65 to 75, low average.
- Group No. 3 75 to 85, high average.
- Group No. 4 85 to 100, superior.

It will be seen that the score covers the whole range of intelligence, being easy enough so that the most stupid can get something and difficult enough to tax the most brilliant, there being but two zeros and 14-100's in the series of 4000. The

relative value of the five tests is shown in figure two.

The most important questions to be determined were the meaning of the result of this test and its application. Assuredly there is some difference between the man scoring 65 and the man scoring 85. In order to get the relation between the score and the actual capacity of the man all recruits entering several schools were graded. Then as they succeeded or failed, completing the course in the school being considered a success and being dismissed from the school being considered failure, this result was correlated with the score. It was soon apparent that there was a tendency to fail on the part of the low men and to succeed on the part of the high. A difficulty encountered was that the schools maintaining a high standard took few low men, while those with a low standard graduated nearly all who entered. However, after some months of trial results have been obtained which appear to justify the use of the scale. Figure 3 shows the result in the radio school. Similar cases occurred in other schools.

It is apparent that those below 65 (Group I) are so apt to fail in whatever school they may enter that it is wise economy to reject them. For some time past no man has been admitted to any school with a score below 65, this comprising, roughly, the low 30% of the personnel. In some cases where more applications have been received than men were needed, this has been raised to 75. It appears from experience with this method that it is more accurate and more fair than either a written school examination, an educational requirement or a company commander's recommendation. No claim should be made that it is a method of individual study, but it can be said that, with large groups of men and no time for

painstaking individual study, it is a method by which success or failure can be predicted in a large enough percentage of cases to make its use expedient. Its use standardizes admissions to the various schools in the Navy as no other form of examination could possibly do.

Besides being of use as a standardized requirement of school entrance, it is necessary from time

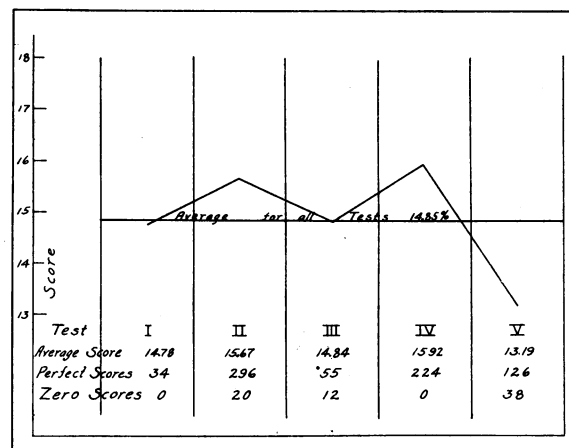


Fig. II. Comparing average total score and averages of each test.

to time to judge men accurately and no one point is of more value than this score.

EDUCATIONAL CLASSIFICATION.

This is relatively unimportant and yet is of some value in estimating a man's worth. There is a continual need of college men on ac-

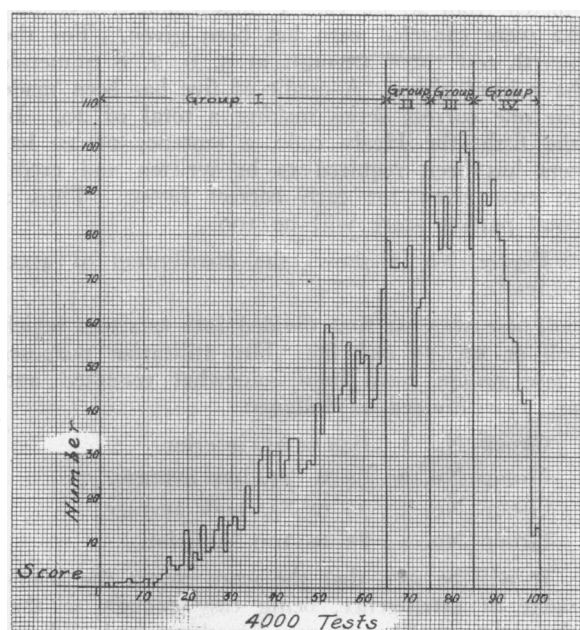


Fig. I. Showing distribution of 4,000 scores and group 1, 2, 3, 4.

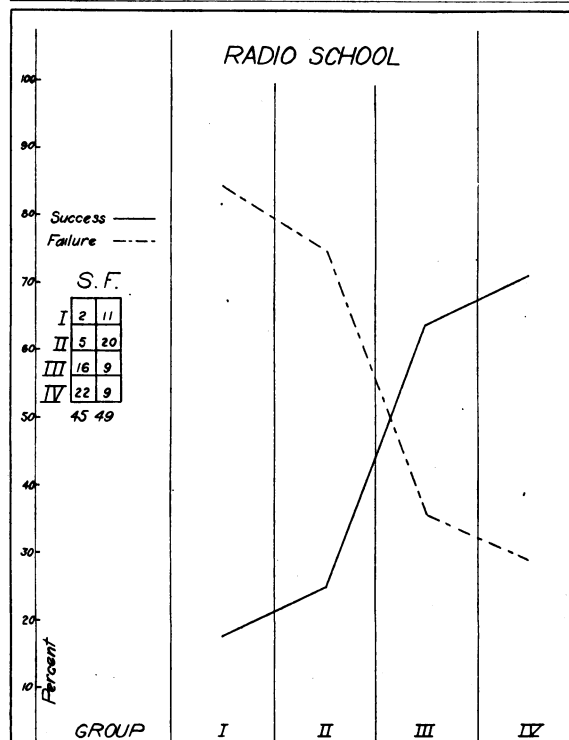


Fig. III. Showing relation of mental groups to success and failure in Radio School. The standard of this school was high as shown by larger numbers in higher groups and large number of failures.

count of their having studied higher mathematics and other things needed by the Navy, also those men with meager education are not so readily trained in the various schools. The relation be-

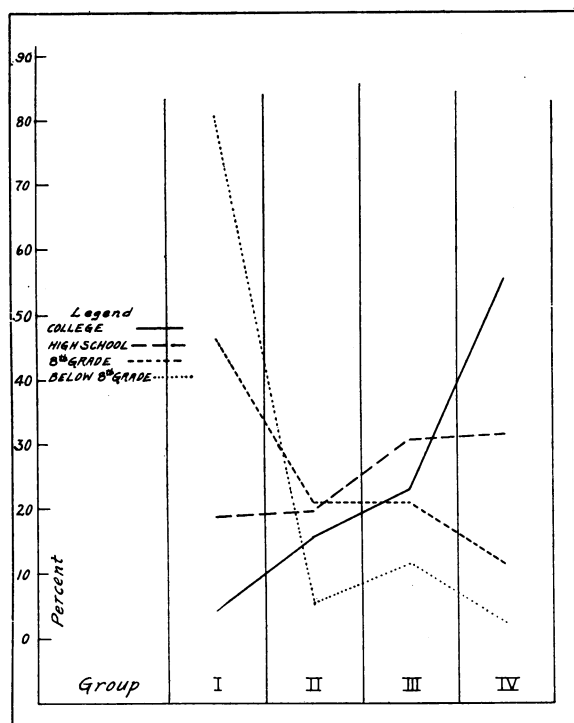


Fig. IV. Showing percentage distribution according to education of men in each group.

tween education and mental capacity is shown by Figure 4.

It appears from this that there is a tendency on the part of college men to make high scores and on the part of those with less than eighth grade education to make low scores, yet it is impossible to predict a man's score by his education because

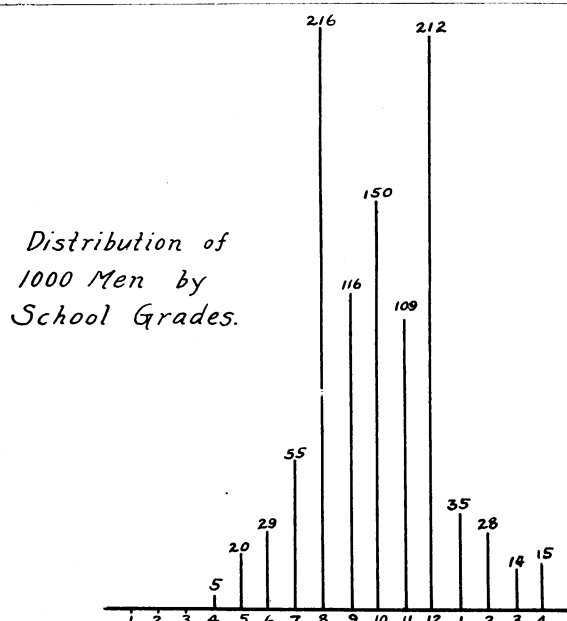


Fig. V. Showing relative amount of education of 1,000 cases from first grade through college.

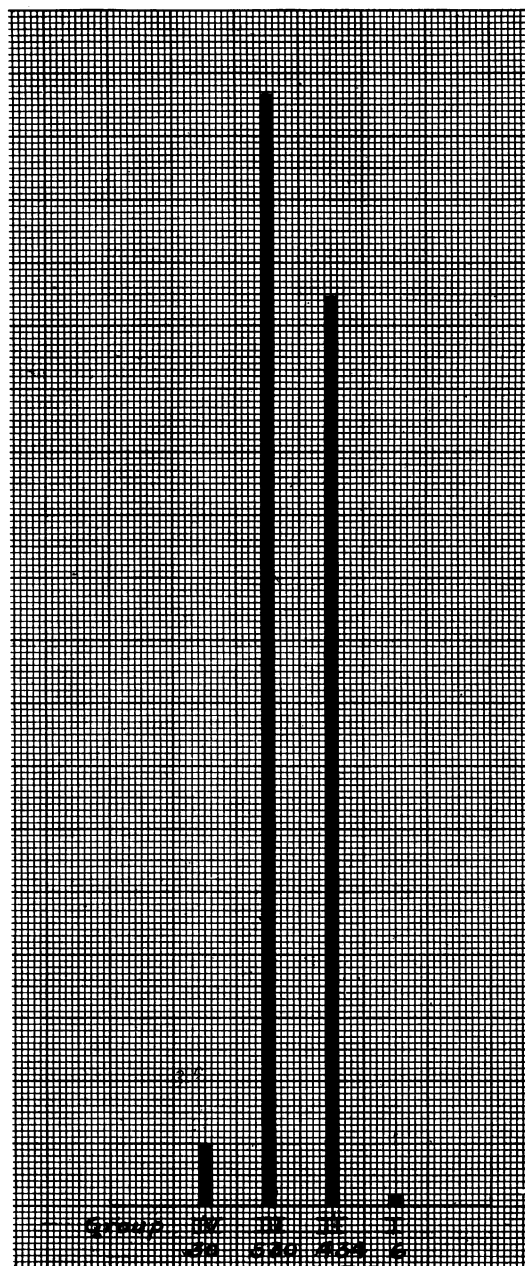


Fig. VI. Showing distribution of 1,000 men according to industrial groups.

certain of those with little education make high scores and vice versa. There is some justification in having an educational requirement for admission to the schools, but from our figures it appears that this is not as reliable as the result of a psychological test. There has been some difficulty in grading men according to education because of the diversity of educational institutions in different parts of the United States.

As with mental capacity and industrial training it was desired to put them in four groups, No. 4 was given to college men, this comprising all men who had formal education in excess of four years high school; No. 3 was given to men who had been to high school; No. 2 was given to those who

had finished the 8th grade; No. 1 was given to men who had not finished the eighth grade.

Thus: No. 1—Less than 8th grade,
No. 2—8th grade,
No. 3—High school,
No. 4—College.

Figure No. 5 shows relative number of each group.

INDUSTRIAL CLASSIFICATION.

The kind of work which an individual has been doing previous to enlistment is of value for two reasons: In the first place it gives an idea of the capacity of the individual; in the second place there is a constant demand in the Navy for men who have had some particular sort of training. Starting with a list including practically all occupations, and another list including the occupations of 10,000 recruits, a final classification including 53 different occupations has been used. The vast majority of the men are relatively unskilled. Many of those who have special skill are of no particular value to the Navy because of this training, so those occupations selected for a place on the list have been taken either because there was a demand from the heads of departments for men with a particular training or because it seemed that men with certain occupations ought to be used for special work. Although on the history card what each man was doing prior to enlistment has been recorded, only those who have worked a year or more at a particular kind of work have been classified. Large groups of unskilled men, such as students and farmers being of no special value to the Navy, have been grouped as miscellaneous untrained. Those having skill in some occupation which might be of some use to the Navy, but which rarely occurs, have been grouped as miscellaneous trained. The list has finally been reduced to 53 different occupations, all of which have at some time or other been of use at the station.

Groups have been made as follows:

- No. 1. Industrial misfits, such as vagrants, criminals or those continually shifting work.
- No. 2. Unskilled, such as farmers and students or day laborers.
- No. 3. Experienced. Those who, although they have not a trade and so would not be considered trained, have had enough experience at a given occupation to make this possibly worth while.
- No. 4. Trained. Embracing highly skilled individuals who have learned a trade or have a profession or business.

Figure 6 shows relative proportion of each group.

In connection with this first group, certain occupations seem to be made up to quite an extent of rolling stones. Among these may be mentioned hotel, pool room, longshore workmen, barbers, teamsters, etc. Each one of the 53 occupations has been given a serial number which can be used in place of the name when it is desired to express a man's formula numerically. The fol-

lowing is a list of the occupations chosen, preceded by the serial numbers:

- | | |
|---------------------------------|------------------------------------|
| 1. Actor. | 29. Jeweler. |
| 2. Architect. | 30. Machinist. |
| 3. Assayer. | 31. Musician. |
| 4. Attorney. | 32. Motor Mechanic. |
| 5. Auto and Motor Truck Driver. | 33. Miscellaneous, trained. |
| 6. Athlete. | 34. Miscellaneous, untrained. |
| 7. Baker. | 35. Motion Picture Mach. Operator. |
| 8. Barber. | 36. Newspaper—Editor, Reporter. |
| 9. Blacksmith. | 37. Optician. |
| 10. Boilermaker. | 38. Photographer. |
| 11. Bricklayer. | 39. Painter. |
| 12. Butcher. | 40. Patternmaker. |
| 13. Carpenter. | 41. Plumber. |
| 14. Cabinet Maker. | 42. Printer. |
| 15. Chemist. | 43. Pipefitter, Steamfitter. |
| 16. Civil Engineer. | 44. Stone Mason. |
| 17. Cement Worker. | 45. Shipwright. |
| 18. Cook. | 46. Shipfitter. |
| 19. Clerk—Office. | 47. Sheet Metal Worker. |
| 20. Clerk—Store. | 48. Shoemaker. |
| 21. Clerk—Drug. | 49. Tailor. |
| 22. Clerk—Postoffice. | 50. Telegrapher. |
| 23. Coppersmith. | 51. Tinsmith. |
| 24. Electrician. | 52. Tool Maker. |
| 25. Engineer. | 53. Welder. |
| 26. Foundry Worker. | |
| 27. Fireman. | |
| 28. Interpreter. | |

It had been customary to tabulate the arrivals, classified by occupations, every month and to send this list to the heads of departments, as these men often select persons from this list which they would not otherwise use; also, a cross index by occupation is kept of the entire population of the station and is accessible in case men are wished of any particular trade.

CONCLUSION.

From the foregoing it will be seen that each man is graded according to the Navy standard on a basis of 1—2—3—4, as follows:

Mentally:

1. Inferior.
2. Low average.
3. High average.
4. Superior.

Educationally:

1. Less than 8th grade.
2. 8th grade graduate.
3. High school students.
4. College.

Industrially:

1. Misfits or failures.
2. Unskilled.
3. Experienced.
4. Skilled.

In addition, each occupation has been given a serial number from 1 to 53. This makes it possible to give every man a numerical formula representing his capacity and training. The serial number representing his occupation is put at the right of a decimal point as it denotes a qualitative factor, the others being quantitative. For instance, 444.4 would represent a man of superior intelligence, college education and highly skilled, his

occupation being an attorney. Also 111.34 would mean inferior intelligence, less than 8th grade education and industrial failure, his work being odd jobs.

This enables a simple index, making it possible to locate and evaluate men easily. Also each number serves as a check upon the other, as a man with a 4 in his formula must be taken seriously, and a 1 means that he should be suspected of incapacity. As a matter of fact the formulas are very consistent, it being rare to find both a 1 and a 4 in the same formula.

Naval Hospital, Mare Island, Cal.

Correspondence.

MEDICAL EXAMINERS' ASSOCIATION.

To the Editor: If it is not too late, I would like to have some notice put in the next number of the State Medical Journal informing the medical examiners of the Exemption Boards that an Association of these examiners will be organized at the time of the State Medical Society meeting in Santa Barbara in April.

Very truly yours,

HENRY H. SHERK.

Pasadena, Cal., March 10, 1919.

ADVICE FROM A COLLECTOR.

March 7, 1919.

To the Editor:—

A few practical suggestions and a little legal advice taken together, make a good tonic for the average doctor's finances. My observations indicate that the ethics, and the professional interest taken by most surgeons and medical men in the performance of their duty to their patients, leaves too little time for the analyzing of their office records. Consequently the simplest system of keeping records that provides all that is required by law is what you must have and to present a case in court in proper form, the original book or books are needed where the suit is on a book account. The book account should be commenced or opened to show the full names of all parties whom you expect to hold responsible, the date of rendering the services, what the services were, and to whom rendered. The account outlaws four years from the date of the last service or the last credit on the account. (Ref. 24 Cal. App. Dec. Page 166.)

Now for the practical suggestions: You want a card system indexed alphabetically and numerically, then have your secretary send out statements regularly each month to all. By so doing, your best patient understands that your office is being run in a business-like manner and will take no offence.

A doctor's services come under the head of necessities and should receive the same attention that a grocery account is usually given. Following that line of reasoning the wage earner should regularly take care of his doctor and the business man should remit immediately when the statement of account is received by him.

My idea in this letter is to caution the medical

profession against the lack of system in the office and the usual inclination to grant unlimited extension of time on your accounts receivable.

In opening a new account, you should be particular to take all the information which might be of service to you later, in case the patients were to die, leave the country, become dissatisfied with your services or the amount of your claim. In short keep a perfect system of accounts.

Very truly yours,

H. G. BITTLESTON.

March 7, 1919.
San Francisco.

ASSEMBLY BILL NO. 798.

To the Editor:—In answer to your invitation for an expression of views from the medical profession with reference to the present Workman's Compensation Law, I desire to call the attention of the profession and others interested to an amendment to Section 9 of said law, which was introduced in January, 1919, and known as Assembly Bill No. 758.

Doubtless the insurance companies will oppose its passage as being too "democratic." They now have a monopoly, and designate the physician regardless of the wishes of the patient, his family or friends, or the physician who may have been called to attend the case. When requested by either to allow a physician other than the one designated by them to continue with the case the usual answer is, "Yes, if the bills are met by the injured party or his friends."

Some cases in point: A man is sent to me by his employer late at night with a broken leg, both arms broken, and numerous scalp wounds. I work all night fixing him up and trying to keep him alive. Three days later the company's agent telegraphs from Los Angeles to their "designated" physician to take charge of the case, which he attempts to do without so much as "by your leave." If the case is taken over by a new physician he must remove casts, bandages, dressings, take new x-ray pictures perhaps, before he can intelligently handle the case, and the injured employee must suffer the extra pain and discomfort to satisfy the mandates of the insurance companies who have made special arrangements with a certain number of physicians and surgeons in each community to handle their cases.

Another example of the working of the present law: An employee is injured some distance out in the country; the employer phones to a physician nearest the location to come. The doctor responds and takes the patient to a hospital, and when he is on the operating table a phone request is received from the insurance agent to turn the case over to a "designated" surgeon, which necessitates the further travel of twenty miles before relief is had. The employee must endure the extra suffering and delay in consequence of the removal, or pay his own bills.

Many such cases of injustice may be expected under the present law.

It would seem reasonable to expect that the just interests of the insurance companies would